

Amendment by Applicant

ATTACHMENT A -- SUBSTITUTE SPECIFICATION

This attachment includes a substitute specification (including the title and abstract, but not the claims), along with a marked-up copy of the original specification to show the changes that have been included in the substitute specification.

*1/Sub Spec
P.E.)
11/21/02
Holloman*

SUBSTITUTE SPECIFICATION

SYSTEM FOR PREVENTION OF SKYJACKING

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a new device and system for thwarting skyjacking.

Description of the prior art

The suicide terrorist attacks on the World Trade Center and Pentagon with huge civil airliners astonished and infuriated the world. "Are we safe?" is a question raised by the people of Hong Kong as well as the USA, whose enormous economic loss is shadowed by inner grief.

Sorrow and anger are condensed into the words "Punish the terrorists!" "Prevent hijacking!" is a paramount task of governments in the future! Sorrow and anger inspire the American people to tide over difficulties with the government! Although airports have resumed service, stricter check-in procedures make people even more anxiety-ridden. "Are we safe?" is a persistent question. The Empire State Building, overwhelmingly magnificent and believed to be the tallest in New York now, is likely to be deserted by salary earners. Skyscrapers are now, expectedly and painfully, choking the life of the economy...

At the US stock exchange, the shares of the insurance companies involved fell into disfavor. It is expected that skyscraper syndrome will also entangle real estate shares. Arrows shot from the dark are beyond our capability to escape from. Who is dominating the world now? The current terrorists crisis tests the intelligence of US leaders, not America's military power. It is a common goal, not just President Bush's desire, to spot the harbor of terrorists and get even with them. Airports are now under stricter control, but is there anybody who can guarantee our safety and reassure us? How can anxiety-ridden people push the economy forward? US President Bush has a bucket of sticky problems to tackle!

How the New York Stock Exchange behaved is a measure of the extent to which the world has been affected by the disaster of the century. What is essential is how to

convince people that such a disaster will not occur again. People expect President Bush to come out to assure them.

The strict and unpleasant check-in procedures at airports are expected to ease after plans for preventing hijacking are implemented. The pain is temporary because the civilized world is powerful in our production and technological capabilities. The disaster will never happen again! The people of the United States and around the world will no longer live in the shadow of terrorism! May the victims of the disaster rest in peace. We'll let terrorists know that human civilization is not to be trespassed upon!

The world is waiting. And it is strongly believed that effective plans for preventing hijacking by improving the structure of the airplanes and setting up corresponding procedures can be devised. It is reported that people working in the Empire State Building feel quite upset because of their being "outstanding". Acrophobia is spreading! Without plans to end hijacking, the shares of airlines, insurance, real estate and tourism will fall into disfavor. Fear will lead to economic turbulence and downturn. We expect President Bush to come out with strong measures and assure people that all evils will be conquered!

The unprecedented disaster heralds the beginning of a life-and-death struggle between the evil and the civilized community. With a sense of mission, the inventor faxed a creative hijacking prevention device and system proposal, as well as the above considerations, to Mr. Liu of the USA Embassy in Hong Kong on September 19, 2001, who forwarded them to the White House and President Bush.

At four o'clock on September 26, 2001, Mr. Liu told the inventor over the phone: "I would like to thank you on behalf of the government of the USA..." On September 27, 2001, President Bush aired three safety measures for civil aviation. It is anticipated that Mr. Bush will take resolute actions to implement these measures and launch a campaign to conquer the evil! It is gratifying to note that President Bush's three safety measures for civil aviation are similar to ones that were proposed by the inventor.

On October 22, 2001, the Patent Bureau of China finished an international patent inspection report concerning an application for a patent on "Measures on the Prevention of Hijacking of Civil Airliners". This report lists six references for gauging the

originality that a patentable technique should have. It is these six references that set off not only the originality of this patent application, but also its flawlessness!

The reference numbers of the six references in the Inspection Report are listed below:

	Relativity	Country	Reference No.	Requests for rights	International patent No.
1	1	CN	A,85100918, B64CA/14	1-3	B64
2	Y	CN	A,1126686, B64D25/00	1-2	B64
3	Y	CN	A,1038434, B64D25/00	1-2	B64
4	Y	US	A,3704845, B64C1/10	1-2	B64
5	Y	JP	A,9-036791, H04B7/15	3	B64
6	Y	JP	A,9-020297, B64D47/00	3	B64

1. Patent No. CN85100918a

Patent owner: Mr. Yi Ming and Mr. Shen Xinhua of Mashan Surveying and Mapping Team, Jinxian County, Jiangxi Province.

Patent name: Airliners with Anti-Hijacking Function Dec. 20, 1985

The following three major technical features of this invention are:

1. Walls and doors with new functions: using new materials to make the walls and doors capable of sustaining heavy impacts and gunfire.
2. Two different types of "safety cockpit" designed to prevent hijackers from entering the cockpit, thus ensuring normal flight of the airliner.
3. An alarm device designed to keep people informed whether safety door of the cockpit is open or closed.

The first technical feature is designed in light of the following:

- (1) Using bulletproof high-performance materials to make isolating boards.
- (2) Double-bar-shaped, spear-shaped and blade-shaped screws designed to fix the isolating boards and prevent hijacking.
- (3) An external framework with "metal blades" designed to fix the isolating boards and prevent hijacking. Aluminum alloy materials are shaped like knives or saw-teeth, giving the "metal blades" extra power.

The second technical feature is designed in light of the following

- (1) Safety isolating walls with no doors and permanent safety cockpit.
- (2) A transit room and impermanent safety cockpit.

- (3) Transit room temperature including how to enter the cabin from the cockpit and vice versa.

The third technical feature is designed in light of the following:

- (1) An alarm device used to keep the crew informed whether the doors of the cockpit and cabin are open or closed. The alarm device may consist of an indicator, flashlight and buzzer.
- (2) Spring switches designed to connect or disconnect some circuits according as whether the safety bolts are plugged or unplugged.
- (3) Synchronized switches designed to make the alarm device automatically operate when the airliner is started.

2. Patent CN 1126686A

Patent owner: Mr. Wang Honghua, Shangyuetang Construction Section, Zhuzhou City, Hunan Province, 412000

Patent name: Airliner Anti-Hijacking System, January 12, 1995

The application of Mr. Wang Honghua is basically the same as No. 88103336.7 patent CN 1038434A of Mr. Zhang Hua and Mr. Zhou Guangyuan of Beijing.

This invention adopts an automatic monitor to transfer messages, but it is installed only in the airliner. The inventor treats the airliner full of passengers as a battlefield.

1. The inventor proposes to install the alarm device in the cockpit, but fails to explain how the alarm device identifies hijackers.
2. He points out that a "digit-key alarm device" is now available in China, explains how the alarm device can exactly count the hijackers, how many cameras are needed to cover every corner of the airliner, how to identify overlapped images, and how to spot disguised hijackers. The 0-9 keys are intended to notify the control (operation) room by pressing 6 or 7 when 6 or 7 hijackers are counted. Then what about 11 hijackers? The story is not convincing first because of the irrational design of the alarm device!
3. The inventor proposes to equip the plane with auto-aim guns that are synchronous with the small-video cameras, transferring messages to the control room. His invention does not ensure the safety of the hostages.

The auto-aim technique is rather complicated. The "anti-hijacking" function claimed by the inventor will fail if the hijackers hold just one hostage or makes a smoke screen.

3. Application 88103336.7 CN 1126686A

Patent owner: Mr. Zhang Hua

Address: No. 8, Bldg. 2, behind Yong An Dong Li Primary School, Jian Guo Men Wai, Chaoyang District.

Patent name: Anti-Hijacking Device Installed on the Aircraft

January 3, 1990

A TV monitor, striker, gun barrel and gun head on the operation desk designed by the Beijing inventor can't prevent hijacking. They are just mechanical or shooting devices, which can do nothing when terrorists hold any hostage. Patent 88103336.7 CN 1126686A is by no means the same as the present inventor's hijacking-prevention solution.

4. Application US A,3704845, B64C 1/10

Patent owner: Michael Ord, 5267 Wilkins Avenue, Pittsburgh, Pa.

Dec. 5, 1972

Patent name: AIRPLANE HIJACKING PREVENTION SYSTEM

A method and system for preventing airplane hijacking features the following:

1. The cockpit is isolated from the cabin to give passengers a sense of safety, but communication must be ensured. The buttons fixed in the cabin keep the cockpit informed of such things as oxygen shortage, fire alarm, medical accident, device fault and any other trouble.
2. The isolating door between the cockpit and the cabin is restricted, and the door and its associated isolating walls are made of bulletproof materials.
3. The voice communication system of the audio system is a one-way system from the cockpit to the cabin, preventing the words of the hijackers from being heard.
4. This invention warns the passengers in advance.

The key idea of the patent is that the pilots are locked in the cockpit so that the hijackers cannot communicate with the pilots. Even if the hijackers hold any

hostage, the pilots will not open the cockpit without hearing anything. Even if the hijackers hold any hostage, the pilots will not open the cockpit without hearing anything. Even if the hijackers do as indicated in Fig. 4 of the reference, the pilots may choose to stay if the situation is not critical.

5. Application JP,A,9-036791, H04B7/15

(19) Franchise Office of Japan (JP) Issued on Feb. 2, 1997

Inventor: Decheng Changzhi

Address: No. 1 Bldg. 1 Dingmu 2, Xiaogu, Hanchuanding, Gaozuo Shire, Kangawa

Patent name: A Support Device Using Satellite Communication to Prevent Hijacking

The inventor designed the support device using satellite communications to prevent hijacking. The device keeps a ground monitoring center informed of what is going on in a hijacked airliner by means of satellite communication.

In case of hijacking, the passengers or aircrew press emergency buttons fixed at various places in the airliner, and a video camera with long or short lens installed at an appropriate place begins to work, digitizes the information by means of an image processing device or turns the information into FX (facsimile) file format, and then sends the information to the ground monitoring center via the satellite. The ground monitoring center in turn sends information via the satellite to the camera so that the camera adjusts the foci and angles of the long and short lens. In addition, dialogs may help to solve hijacking.

What the reference proposes:

1. Fix several cameras at places with a good field of vision and install a monitor in the cockpit to monitor the cabin, and receive information from the communication satellite and transfer it to the ground monitoring center through the support device.
2. Record the information of the satellite for the use of the emergency communication device. Use the image processing device to digitize the information or turn the information into FX (facsimile) file format and then send it to the ground monitoring center.

3. Fix emergency buttons in the cockpit and the cabin, which serve to start the support device so that the ground monitoring center can monitor what is going on.
6. Application JP,A,9-020297, B64D47/00
(19) Franchise Office of Japan (JP) Issued on January 21, 1997
Inventor: Youdong Gongqi
Address: No. 1, Zhizituju 1467, Zuoboding, Zhedao
Patent: Support Device for Hijacking Prevention
Application JP,A,9-020297, B64D47/00 is exactly the same as JP,A,9-036791, H04B7/15. It is strange that both of them should be approved. Both use satellite communication to achieve the same purpose. Both are different from the hijacking prevention system. One item of the present inventor's hijacking prevention system solution features a detailed and original arrangement for remote control of the airliner. Therefore, we can easily come to the conclusion that application JP,A,9-020297, B64D47/00, just like JP,A,9-036791, H04B7/15, would not have led to the present inventor's prevention system solution.

SUMMARY OF THE INVENTION

The disadvantages of prior art are overcome by the present invention. The following are disadvantages and the solutions provided by the present invention:
The features of CN 85100918A include the following:

1. Shockproof isolating walls with or without doors, featuring bulletproof materials (unidentified yet) and heterogeneous screws fixing isolating boards.
Comments: Over one hundred years' development of aircraft leads to different performance concepts of isolating-wall technique and bulletproof performance. This patent technique is open to all aircraft manufacturers.
2. Permanent doorless design or entering impermanent safety cockpit through the "transit room."

Comments: The application for patent does not depend on the failure or success of a permanent doorless design. The safety conditions of the "transit room" are monitored through a peephole. The right of passage through the "transit room" is subject to the perception of the aircrew, which is a time-honored concept! What is strange is that the most recent application for patent was made in 1985, but there weren't the sophisticated automatic detection tools already available in the 1970s, so that patent CN 85100918A lacks the originality essential to any patent! The inventor has further modified the design from double-wall double-door to double-wall three-door (Figure 9). Short of automatic detection tools, however, more doors are of no avail! A knife is enough for the terrorists to force the aircrew to take them through the "transit room" to the cockpit! Therefore, no one has used patent CN 85100918A. The inventor is fully aware of that and so identifies his invention as an impermanent design.

3. The third patent feature of CN 85100918A is the alarm device designed to keep people informed whether the safety door of the cockpit is open or closed.

Comments: Page 7 is highlighted by the patent staff: (1) The alarm device consists only of an indicator, flashlight and buzzer. It serves to notify whether the doors are properly closed. But the then-popular infrared sensor is not used, so how could such an alarm device be sophisticated? (2) The safety lock is even or outdated. It is intended to lock the door of the cockpit, with the key to be kept by the captain. What the terrorists need to do is steal the key (without needing to kill the captain) and enter the cockpit. (3) The shield of the peeping device is intended to prevent terrorists,

who may look into the cockpit through the peephole, from shooting at pilots. If the terrorists are determined to shoot, chain switches may serve the same purpose. In addition, convex lens, widely used in stores and shops, may better serve the purpose. Therefore, using a shield is like carrying coals to Newcastle!

Patent CN 85100918A is defective. The 19th-century technology was not to blame for its inability to prevent hijacking. The scarcity of practical anti-hijacking techniques sets off the originality of this patent technique. For example, image identifier, identification through sound spectrum, and use of five-finger mold instead of that of a single finger. The application of this patent system solution will help eradicate "hijacking"!

Patent CN1126686A may be virtual, but it does not befit a civilized society to turn an airliner into a battlefield. Unlike patent CN 1126686A, which features "anti-hijacking," the present inventor focuses on the prevention of hijacking, and therefore his patent application is justifiable.

Patent 8810336.7 CN 1126686A is by no means the same as the present inventor's hijacking-prevention solution. Having been widely used, a TV monitor is but an auxiliary feature. It is not the key to the present inventor's solution to hijacking prevention. It does not befit a civilized community to ignore the safety of passengers and turn an airliner into a battlefield. Therefore, the present inventor believes that application 8810336.7 is not truly valid.

Drawbacks of patent US A,3704845, B64C 1/10

1. The US patent invention does not allow for any possible neglect of the pilots.
2. The pilots may not come even if all buttons in Fig. 4 of the reference are pressed.
3. Are the bulletproof wall and door of the cockpit soundproof? The hijackers know perfectly well how to raise hell, and they may kill one person every five minutes until the pilots come out!

4. The pilots may rely on their unreliable perception and reasoning to decide whether to open the door of the cockpit; therefore the US patent invention is inadequate to deter hijacking.

The US patent invention in 1972 has drawn upon the experience of the previous three patents of China but still leaves much to be desired. By contrast, the double-door structure proposed by the present inventor is original, the "single-person checkroom" is a natural evolution of modern technology, and the five-finger mold is unprecedented. The single-person checkroom of the double-door structure precludes the effect of human factors and the five-finger mold makes the system flawless.

The present invention can also serve as a support device to prevent hijacking through satellite communication! Its merit is that the support device can be used for negotiation and monitoring!

It is recommended, in one item of the present inventor's hijacking prevention system solution that, apart from using satellite communication for negotiation and monitoring, manual piloting should be disabled while automatic piloting is enabled until the airliner touches down, thus deterring hijacking. There lies a primary feature of the invention! Satellite communication is not the patent right of application JP,A,9-036791,H04B7/15, but instead the right of the owner and inventor of the satellite! What makes the difference is how to use satellite communication to achieve different purposes. The present inventor's hijacking prevention system solution features a detailed and original arrangement for remote control of the airliner. Therefore we can easily come to the conclusion that application JP,A,9-036791,H04B7/15 would not have led to the generation of the present inventor's hijacking prevention system solution.

Application JP,A,9-020297,B64D47/00 is exactly the same as JP,A,9-036791,H04B7/15. It is strange that both of them should be approved. Both use satellite communication to achieve the same purpose. Both are different from the present inventor's hijacking prevention system, which features a detailed and original arrangement for remote control of the airliner. Therefore we can easily come to the conclusion that application JP,A,9-020297,B64D47/00, just like JP,A,9-

036791,H04B7/15.k would not have led to the generation of the present inventor's hijacking prevention system solution.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a drawing that shows the hijacking prevention system and device.

Fig. 2 is a flow chart of the airliner hijacking prevention system.

Fig. 3 is a program block diagram of a single person checkroom security system.

Fig. 4 is a drawing that represents the construction of a series of security checking system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A. Improvement of Airplane Structure and Establishment of Corresponding System Program:

1. As shown in Fig. 1, at reference number 1, a "single person checkroom" path structure is installed to make it impossible for terrorists to enter the cabin.
2. With reference to Fig. 2 of the systematic program, an independent concealed electronic monitoring device is installed. It is not controllable by but is visible to the aircrew. A special waveband transfer enables a ground-based monitoring center to have full control of terrorists and negotiate with them easily.
3. With reference to Fig. 1, at the four passages of the entrance 3 of the airliner, remote-controlled chemical spraying guns and appropriate obstacles are installed to control or restrict the activities of terrorists. Narcotic sprayer may also be installed.
4. With reference to Fig. 2, nothing is worse than when the pilot takes a hand in hijacking, but in this case a "flight orbit calibrator," or flight path specifying unit, can be used to lock the flight course, under the remote

control of the ground-based monitoring center. In Fig. 2, notations such as "Fig. 1-5" indicate reference number 5 in Fig. 1.

5. With reference again to Fig. 2, the ground-based monitoring center has special plane with a monitoring device, ready to fly and trace. Or satellite relay stations may transfer monitoring messages.
6. Set flight discipline for the aircrew.

B. Fig. 3 shows the Facilities and Features of the System Program:

- (1) Passage checkroom structure and system setting:
 - a. In Fig. 1, a unidirectionally transparent bullet-proof glass door, having panels a and b, is installed from the cabin to the passage as a second door, so that the pilot can see the passage unidirectionally, making hijackers conscious of someone looking at them in the dark.
 - b. As shown in Fig. 4, back and front panels a and b of the bullet-proof glass door are both unidirectionally transparent, with a 0.8-1 meter single person checkroom in between. Fig. 4 also shows a detector c of a raster curtain, a detector d for identifying weight, a detector e for a password card, a detector h of a finger mold test and a detector i for an image test. Fig. 4 also shows a detector j of human body infrared, a launcher k of special beams for the raster curtain and a detector l for voice recognition. These detectors automatically identifying weight, a password card, fingerprints, and an image, and provide a voice test. Although FIGS. 1 and 4 show elements c, d, h, i, k, and L at positions offset from the "single person checkroom" that is provided between the panels a and b, it will be apparent that this has been done merely for the sake of convenient illustration, and that the elements are preferably located for testing a person who is confined between the panels a and b.
 - c. As shown in Fig. 2, the front and back panels are closed under the double control of closing instructions of an airplane in flight status

and the ground-based monitoring center, meanwhile turning on the automatic identifier.

- d. As Fig. 2 shows, the aircrew must get permission via communication and a password card instruction to open the first door and enter the checkroom, and the automatic identifier, after sensing only one person in the checkroom, closes the first door and begins to check.
- e. As shown in Fig. 3, after the automatic identifier checks that only a single person is present and makes ID identification, the cabin, on being notified of the ID of the approaching person, decides whether to open the second door. The first door will not open until the second door closes, thus preventing hijackers from swarming in.
- f. Persons in the cabin will be documented by the captain and the monitoring center respectively when the automatic identifier is started. There must be at least one engineer in the cabin; otherwise no person can pass the checkroom, except in non-flight status of the plane or by obtaining instruction from the monitoring center.
- g. If any person in the cabin wants to leave the cabin during flight, a simple password card can be used to open the second door and enter the checkroom, and the automatic identifier in the checkroom instructs the second door to close and begins to check. The first door can be opened only after the check.
- h. The automatic identifier sets the number of persons in the cabin and decides that at least one engineer must stay in the cabin during flight.
- i. Problems and solutions:
 - 1. The automatic identifier restricts the number of persons in the checkroom, making it impossible for hijackers to enter the checkroom together with the aircrew. A hijacker may only enter under disguise, but the automatic identifier may have identification combinations, such as the weight,

fingerprint and palm print and voice. The unidirectionally transparent glass door fully exposes hijackers, but it is necessary to equip a back-view mirror for the engineer or formulate a review system to increase the weight of manual check.

2. Why use the five-finger mold? Because a single finger may be cut, but if the whole hand is cut, it will be impractical and unnecessary to use modern technology to make a frozen cut hand resume its original appearance in the short time and limited space. This makes the system flawless.
3. Even if the engineer and aircrew are hijackers, who can freely pass the single person checkroom, they are restricted by a locked flight course by means of the flight locus calibrator.

(2) Independent concealed electronic monitoring device:

The historic disaster of the World Trade Center shows how defective the designs of airplanes are: the hijacking shut down all communications facilities so that their identities remained a mystery. The black box cannot provide real-time on-site video and audio recordings, making it almost impossible to find and punish those behind the terrorist acts.

Airplanes are not equipped with independent concealed video and audio electronic monitoring equipment and real-time transfer and storage equipment, which (if any) cannot be controlled by the aircrew. This is ridiculous today, when technology is so sophisticated and the space is studded with satellites. No doubt, the US aviation security bureau cannot pass the buck.

Therefore, it is imperative that an independent concealed electronic monitoring device 4 should become a standard device of an airliner. Some people may claim that their privacy is encroached upon, but the monitoring on the channel is within the permitted range. And so the independent

concealed electronic monitoring device may somewhat deter potential hijackers.

- (3) A locked flight course by means of flight locus calibrator:
 - a. As shown in Fig. 2, in case the flight orbit deviates from the preset course, the calibrator 6 (see Fig. 1) will surely use the alarm functions of the electronic monitoring device.
 - b. With the flight orbit calibrator 6, the ground-based monitoring center may switch manual steering over to remote-controlled automatic/semiautomatic steering (not beyond the present technology) when the engineer loses his right to act. A remote-control plane may be provided so that it can take off and take control of the airliner in the event the signal from the monitoring center lacks sufficient coverage.
 - c. It is advisable to draw upon the high-air remote control technology of air scouts. The security of a hijacked plane may somewhat be affected by geographical and atmospheric conditions, but "remote control" can bring the hijacked plane to "an automatic flight status" and thus absolutely prevent the plane from suicide attack on downtown areas or landmark buildings. For example, the plane can be made to safely rise and fly away from the downtown area and enter into "remote-controlled steering status," thus winning time for the plane to enter the preset course. Decades of successful applications of automatic pilot technology have made us fully convinced of its security.
 - d. Confidentiality of remote control information is no problem in today's digitized age.
- (4) The ground-based monitoring center should have a special plane with a monitoring device, ready to fly and trace. The ground-based special remote-controlled plane prevents an accident plane from flying out of the direction radius.
- (5) Set flight discipline for the aircrew:

- a. It is necessary to strictly comply with the discipline set by the structure and program of the channel calibration room so as to preclude any hijacking.
- b. Make the engineer more capable of tackling emergencies, mainly with portable non-fatal chemical weapons.

From the description above, the excellence and characteristics of the present invention will be apparent:

1. The Measure Plan of this patent application centers on structural techniques;
2. Various combinations of available classifiable techniques are used in the Measure Plan;
3. The Measure Plan is quite comprehensible. Except the remote-controlled transmissions, which are encrypted, all the rest is open to the public, thus serving as an effective deterrent to hijackers;
4. Even though the above Measure Plan leaves much to be certified and improved, it comes right to the point if considered from the perspective of the global economy; and
5. It is likely for the Americans to accept the plan, because they have their own thoughts and judgments! They will regain confidence in safety and overcome their fears incurred by the disastrous attacks. The global economical order is soon to return to normal!

The use and networking of "flight locus monitors" of the monitoring centers at airports the world over promise enormous business opportunities. Uprooting hijacking, striking terrorism worldwide and defeating the evil by enlightened means manifest the intelligence of the civilized human community.

The present invention has been described with reference to a preferred embodiment thereof and it is understood that this is not a restriction to the present invention, and that many changes and modifications in the described embodiment can be carried out without departing from the scope of the invention, which is intended to be limited only by the appended claims.